

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's name (see Rule 1.1)	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, item 5 below
D-17058, ...	International filing date (day/month/year)	(Earliest Priority Date (day/month/year))	
International application No.	08/04/2008	08/04/2004	
PCT/US2005/010147			
Applicant			
MERSIDENTYACG PATENTING SYSTEM, LLC			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of ..... X ..... sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

a. With regard to this language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under that item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box III.1.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. The figure of the drawings to be published with the abstract is Figure No. .... 1A .....

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because the figure is the drawing selected by the International Searching Authority.

b. ☐ none of the figures is to be published with the abstract.

A. CLASSIFICATION OF SUBJECT MATTER			
IPC 7	B65D5/50	B65D5/22	B65D5/46
			B65D5/44
			B65D71/00
B. FIELDS SEARCHED			
IPC 7 - B65D			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Location of document, with indication, where appropriate, of the relevant paragraph	Relevant to Claim No.	
X	GB 406 511 A (KENNETH JAMES MARDON) 1 March 1934 (1934-03-01)	1-4, 7, 8, 11, 14	
Y	page 2, lines 46-127; figures 4, 5	12, 13	
X	CH 93 304 A (PERRET, HORACE) 16 May 1922 (1922-05-16)	1-4, 7, 8, 10, 11, 14	
	page 1, column 2; figures 2, 4		
Y	US 5 842 568 A (CHANG-WEN ET AL) 1 December 1998 (1998-12-01)	12	
	figure 2		
Y	US 1 960 947 A (LAUTH EDWARD J ET AL) 29 May 1934 (1934-05-29)	13	
	figures 2, 8		
<input type="checkbox"/> I specify the keywords and links in this column as a list of keywords.			<input checked="" type="checkbox"/> I attach keyword statements, see below in table.
Special categories of cited documents: * document defines the general state of the art which is not considered to be of particular relevance * document is published on or after the international filing date * document which may throw doubts on priority claims in which it is cited to establish the relevant state of the art * document relating to an oral disclosure, use, exhibition or other means * document published prior to the international filing date but later than the priority date (divulged)			* later document published after the international filing date is priority date and not in conflict with the state of the art * document is published on or after the international filing date * document of prior art relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone * document of prior art relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other prior art documents, such combination being obvious to a person skilled in the art * document of novelty of the prior art
Date of the search complete of the international search		Date of making of the international search report	
4 July 2005		17/03/2005	
Name and mailing address of the ISA European Patent Office (EPO) Patenting 2 PO Box 1200 1000 Luxembourg Tel: (+352) 4401-2000, Fax: (+352) 4401-2000 Fax: (+352) 4401-2000		Authorizing officer Jervelund, N	

Patent documents cited in search report	Publication date	Patent family member(s)	Publication date
GB 406511	A	01-03-1934	NONE
CH 93304	A	16-05-1922	NONE
US 5842568	A	01-12-1998	NONE
US 1960947	A	29-05-1934	NONE

# RESERVE COPY PATENT SPECIFICATION

Application Date: May 28, 1931. No. 16,669/31.

372,119

Complete Left: Feb. 10, 1932.

Complete Accepted: May 4, 1932.



## PROVISIONAL SPECIFICATION.

### Improvements in Cardboard or like Containers for Articles of Merchandise.

We, **EMERY CONTAINER CONTAINERS LIMITED**, a British Company, and **NORMAN PHILLIPS GILES**, a British subject, both of Park Royal Road, North Acton, London, N.W.10, England, do hereby declare the nature of this invention to be as follows:—

The invention relates to cardboard or like containers for articles of merchandise and its object is to provide a container of improved construction which will be pillar-proof, that is to say, will permit the articles contained in it to be visible, while positively preventing their removal without damage to the container or its contents. For convenience in describing the invention the articles are hereinafter referred to as bottles of the like, but it is to be understood that with slight constructional modifications containers according to the invention may be adapted for the storage and transport of many other kinds of articles, for example, eggs, electric lamps, pearls with sharpened ends, or in fact any articles having parts of smaller and larger parts.

According to the invention the pillar-proof container for bottles and like articles of merchandise comprises a casing having an open top and an apertured partition through which the articles may severally project and/or be visible, and means for positively locating the partition and enclosing the bottles between it and the bottom of the casing.

The partition is preferably separate from the casing. It may be therein contained in one direction by abutments formed by turning in two or more walls of the container upon themselves, and in the other direction by the larger parts of the bottles, which rest upon flaps integral with the casing and turned inwards to constitute the bottom thereof.

It is an advantage of the container that the walls of the casing may extend to a greater height above the partition than the necks of the bottles projecting through it, so that they are protected.

In one form of the invention the apertured partition may constitute one end of a crate-like structure in which articles may be placed. The filled crate may then

be inserted in a casing with its apertured end against abutments adjacent the open top thereof and secured within the casing by closing and sealing flaps integral with the casing and constituting its bottom.

In another form of the invention which may be of particular use where the articles themselves are not capable of maintaining the apertured partition in its position against the abutments, any or all of the edges of the partition may be turned and extended along the walls of the container to about the inwardly turned flaps constituting the bottom thereof and so hold the partition against the abutments adjacent the open end of the casing.

In order that the nature of the invention may be fully understood an embodiment will now be described by way of example.

A rectangular open ended casing of cardboard or like material has its walls severally extended upwards and downwards beyond the length of the bottles to be held in the container of which the casing is to form a part. The upward extensions of the walls are turned in upon themselves, thus leaving the top of the casing open. The lower extensions are suitably shaped into flaps which may be turned inwards and sealed to close the completed container after it has been filled. A strip of cardboard or like material is divided by two creases into three parts, the middle part being provided with a number of apertures. This strip of material is inserted in the casing from the bottom thereof until the edges of the apertured middle part abut the edges of the inwardly turned walls near the top of the casing. The parts of the strip on either side of the middle apertured part, which now forms a partition, extend downwards to the bottom thereof and about the bottom flaps when these are turned inwards, thus maintaining the apertured part against the abutments. The space enclosed between the apertured partition and the bottom of the casing is next provided with apertured partitions which divide the space into a number of compartments corresponding to the apertures in the partition. The container is

thus complete and ready to be filled with bottles, after which the bottom flaps may be turned upwards and sealed.

Hand-lifting may, if desired, be provided in two opposite walls of the casing for convenience in the handling thereof.

It will readily be understood that the bodies of the bottles are enclosed between the apertured partition and the bottom of the casing. The shoulders of the bottles are against the partition, and their necks project through the apertures in it. Since the walls of the casing are only turned inwards above the full height of the bottles there is surrounding the necks of the bottles a flange which protects them and prevents them from being accidentally broken off in the handling of the container.

It will also be evident that the turning in of the walls of the casing is not only a very convenient means of providing an abutment for the apertured partition, but also results in the flange surrounding the necks of the bottles being of double thickness and correspondingly greater strength.

The casing according to the invention may be made of any convenient material but, for preference, in the packing of fragile articles, it is of corrugated board.

It will be obvious that modifications may be made in the structural form of the constituent parts of the container without departing from the scope of the invention. For instance, the apertured partition may be the middle portion of a long strip of material, which is divided by creases into three parts: an each side of the apertured portion. A container may be formed by inserting the apertured portion of this strip into the top of an open ended casing so that the side portions adjoin the apertured partition lie against and within two opposite walls of the casing, the next side portions lie outside these walls, and the end portions are turned inward at the bottom of the casing to lie between the walls and the sides of the articles to be inserted. In each case the two walls of the casing referred to will not have flaps at the bottom, and the closure will be constituted by flaps on the other two walls preferably both such size as to cover completely the bottom of the container and those to be secured.

Dated this 27th day of May, 1921.

H. B. FITZPATRICK & Co.,

Chartered Patent Agents,

49, Chancery Lane, London, W.C.2, and

31, Hope Street Glasgow

## COMPLETE SPECIFICATION.

### Improvements in Cardboard or like Containers for Articles of Merchandise.

WE, FRANKLIN CORRIGATED CONTAINERS LIMITED, a British Company, and NORMAN PULLER GARD, a British subject, both of Park Royal Road, North Acton, London, N.W.11, England, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to cardboard or like containers for articles of merchandise and its object is to provide a container of improved construction which will be self-proof, that is to say, will permit the articles contained in it to be visible, while positively preventing their removal without damage to the container or its closure. For convenience in describing the invention the articles are hereinafter referred to as bottles or the like, but it is to be understood that with slight constructional modifications containers according to the invention may be adapted for the storage and transport of many other kinds of articles, for example, eggs, electric lamps, pencils with sharpened ends, or in fact any articles having parts of smaller and

larger girth.

According to the invention the self-proof container for bottles and like articles of merchandise comprises a casing having an open top and an apertured partition through which the articles may, soverall, be visible or project the partition being separate from the casing, and retained therein by abutments formed by turning in two or more walls of the container upon themselves.

The partition may be retained by one direction by the said abutments, and have extensions turned along or about the walls of the casing to retain the partition in the other direction.

It is an advantageous feature of the container that the walls of the casing may extend to a greater height above the partition than the necks of the bottles projecting through it, so that they are protected.

In one form of the invention the apertured partition may constitute one end of a crate-like structure in which articles may be placed, the crate being adapted to be inserted in a casing with its apertured and against abutments adjacent the

open top thereof and secured within the casing by closing and sealing flap integral with the casing and constituting its bottom.

In another form of the invention, which may be of particular use where the articles themselves are not capable of sustaining the apertured partition in its position against the abutments, some or all of the edges of the partition may be turned and extended along or about the walls of the container and so hold the partition against the abutments adjacent the open end of the casing.

One embodiment of the invention will now be described by way of example, with reference to the accompanying drawing, wherein:—

Figs. 1, 2 and 3 are inverted perspective views respectively of a casing, an apertured partition and intersecting separating partitions, which are assembly constitute the container.

Fig. 4 is a sectional elevation of a container in an inverted position with its bottom open for filling; and

Fig. 5 is a perspective view of the filled and sealed container partly broken away to show a bottle in position.

A rectangular open ended casing 1 of cardboard or like material has its walls severally extended upwards and downwards beyond the length of the bottles to be held in the container of which the casing is to form a part. The upward extensions 2, 3 of the walls are turned in upon themselves, thus leaving the top 4 of the casing open. The lower extensions 5, 6 are initially shaped into flaps which

may be turned inward and sealed to close the completed container after it has been filled. A strip 7 of cardboard or like material is divided by two creases into three parts, the middle part being provided with a number of apertures 8. This strip of material is inserted in the casing from the bottom thereof until the edges 9 of the apertured middle part abut the edges 10 of the inwardly turned extensions 2, 3.

The parts 11 of the strip 7 on either side of the middle apertured part, which now forms a partition, extend downwards to the bottom of the casing 2 and about the bottom flaps 5 when these are turned

inward, as shown in Fig. 5, thus intersecting the apertured part against the abutments 10. The space enclosed between the apertured partition 7 and the bottom of the casing is next provided with

intersecting partitions 12, 13 which divide the space into a number of compartments corresponding to the apertures 8 in the partition. The container is then complete and ready to be filled with bottles, after

which the bottom flaps 5 and 6 may be

turned inward and sealed with an adhesive strip 15.

Band-locks 14 may, if desired, be provided in two opposite walls of the casing for convenience in the handling thereof.

It will readily be understood from Figs. 4 and 5 that the bottles of the bottles 16 are enclosed between the apertured partition 7 and the bottom 5, 6 of the casing. The shoulders of the bottles are against the partition, and their necks project through the aperture in it. Since the

extensions 2, 3 of the casing are only turned inward above the full height of the bottles, they are surrounding the necks of the bottles a flange which protects them and prevents them from being accidentally broken off in the handling of the container. It will also be evident that the turning in of the walls of the casing is not only a very convenient means of providing an abutment for the apertured partition, but also results in the flange surrounding the necks of the bottles being of double thickness and consequently

greater strength.

The extensions 2, 3 when turned inward maintain themselves in position. The extensions 2 are first doubled inward and thereafter the extensions 3 are turned inward, their lateral edges engaging the surface of the extension 2, as shown in Fig. 1. Thus, when the extensions 3 are completely doubled in they are maintained in the position by the friction of their

edges against the surface of the extensions 2, which are also maintained in position by the abutting edges of the extensions 2.

The container according to the invention provides a high degree of protection against pilfering or substitution of the contents during transit, since the condition of the contained articles is at all times plainly visible, while convenient access to the articles may only be had in a manner which is obviously indicated thereafter, as by the breaking of the sealing strip or damage to the container. The several

parts of the container may be made of any convenient material but, for preference, in the packing of fragile articles, they are of corrugated board.

It will be obvious that modifications may be made in the structural form of the constituent parts of the container without departing from the scope of the invention.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A pilfer-proof container for bottles and like articles of merchandise compris-

ing a rectangular open ended casing of material having its walls extended upwards and downwards beyond the length of the bottles to be held in the container, the upward extensions of the walls being turned in upon themselves to leave the top of the casing open, the lower extensions being shaped into flaps which may be turned inward and sealed to close the completed container after it has been filled.

A strip of material is divided by two creases into three parts, the middle part being provided with a number of apertures, this strip of material being inserted in the casing from the bottom thereof until the edges of the apertured middle part abut the edges of the inwardly turned extensions of the walls.

The parts of the strip on either side of the middle apertured part, which now forms a partition, extend downwards to the bottom of the casing and about the bottom flaps when these are turned inward, thus intersecting the apertured part against the abutments.

The space enclosed between the apertured partition and the bottom of the casing is next provided with intersecting partitions which divide the space into a number of compartments corresponding to the apertures in the partition.

The container is then complete and ready to be filled with bottles, after which the bottom flaps may be turned inward and sealed with an adhesive strip.

It will be obvious that modifications may be made in the structural form of the constituent parts of the container without departing from the scope of the invention.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A pilfer-proof container for bottles and like articles of merchandise compris-

ing a casing having an open top and an apertured partition through which the articles may severally be visible or project, the partition being separate from the casing and retained therein by abutments formed by turning in two or more walls of the casing upon themselves.

2. A container according to claim 1, wherein the said abutment retain the partition in the one direction and the partition has extensions turned along or about the walls of the container to retain the partition in the other direction.

3. A container according to claim 1 or 15 2, wherein the partition constitutes an apertured end of a crate-like structure adapted to be inserted in the casing and there located and secured.

4. A container according to any of claims 1 to 3, wherein the walls of the casing are of greater height above the partition than the parts of the articles projecting therefrom, for protecting the said parts.

5. A pillar-proof container for bottles and like articles of merchandise, substantially as described with reference to the accompanying drawings.

Dated this 18th day of February, 1922.

H. D. FITZPATRICK & Co.,  
Chartered Patent Agents,  
49, Chancery Lane, London, W.C.2, and  
34, Hope Street, Glasgow.



Fig. 3.

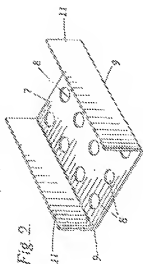


Fig. 2.

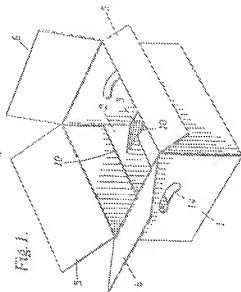


Fig. 1.

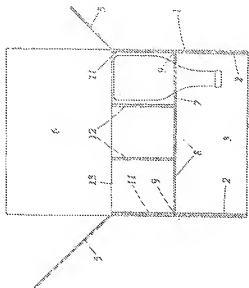


Fig. 4.

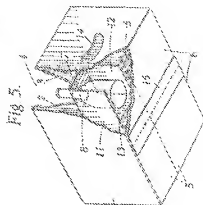


Fig. 5.

[This Drawing is a reproduction of the Original on a reduced scale]



Fig. 3.

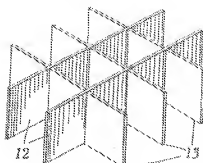


Fig. 2.

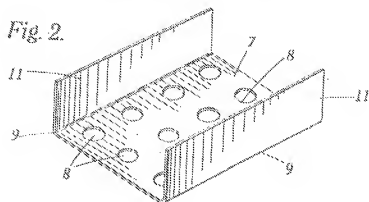
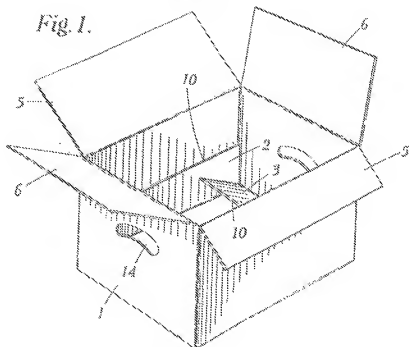


Fig. 1.



*This Drawing is a reproduction of the Original on a reduced scale.*

Fig. 4.

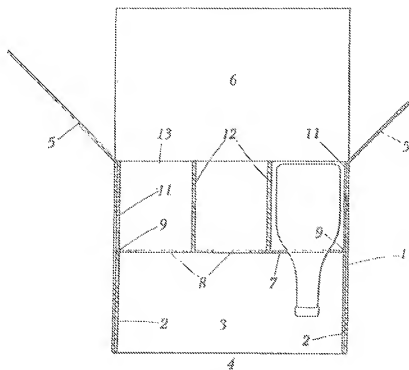
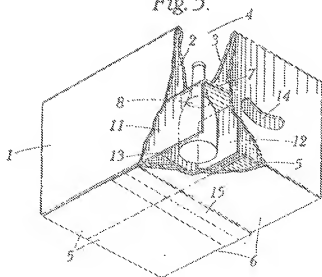


Fig. 5.





Complete Left: June 15, 1933.

Complete Accepted: March 1, 1934.

## PROVISIONAL SPECIFICATION.

## Improvements relating to Packing Cases for Bottled Goods.

I, KENNETH JAMES MARDON, of Redcliffe Lodge, Etilton, in the County of Gloucester, of British Nationality, do hereby declare the nature of this invention to be as follows:—

This invention relates to packing cases for the transport of bottled goods, and is applicable to cases constructed from any suitable material including plain or corrugated cardboard, wood and metal.

The shape or construction of the case is not a feature of the invention, which consists of a horizontal perforated pad or diaphragm fitting tightly within any form of case.

The ends and sides of the diaphragm may be scored to facilitate bending, and thereby may be slightly larger than the interior of the case for the purpose of effecting side thrust—due to the arc of the curve in bending—when the diaphragm is subjected to stress, so by efforts to remove the diaphragm.

An important feature of the diaphragm is the formation by punching or otherwise, of circular holes in the diaphragm, the said holes being arranged to register accurately with the positions of any number of bottle necks or stoppers when the case is filled.

The said holes may be rendered expansible by the slotting of radial cuts which penetrate the diaphragm around the circumference of the holes, so that the

stoppers of the bottles, or the necks may be pushed through the holes, when the diaphragm is forced into the case.

The segments formed by the said radial cuts about the holes, are contracted below the stoppers or the neck projections of the bottles, and provide a protection against unauthorized removal.

An alternative arrangement for securing the diaphragm at the sides or ends where the diaphragm is in close contact with the case, is effected by ducking up the borders of the diaphragm to the extent of one or two inches at right angles to the plane of the diaphragm.

The said borders are arranged to butt against the edges of doubling strips which are common in such cases and are formed during construction.

This modification of the diaphragm is otherwise arranged with a series of holes slotted with radial cuts for locking under the bottle stoppers as before described.

The safety pad or diaphragm as described is not a constructive feature of the case, per se, and is readily arranged as a fitting for large, medium or small cases in a variety of shapes.

Circular or elliptical cases may be fitted with the pad or diaphragm modified to suit the outline of the case, preserving the features of safety as before described.

Dated this 3rd day of May, 1933.

KENNETH J. MARDON.

## COMPLETE SPECIFICATION.

## Improvements relating to Packing Cases for Bottled Goods.

I, KENNETH JAMES MARDON, of Redcliffe Lodge, Etilton, in the County of Gloucester, of British Nationality, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to packing cases for the transport of bottled goods, the cases being of wood, cardboard or other suitable material.

The improvement is not considered as

referring to the construction of the case itself, but concerns the method of securing the goods by means of detachable diaphragms fitted in the upper side of the cases and rendered removable by flexing the said diaphragms.

A case of this nature has been described having an upper border or double thickness formed by turning down a broad edge of the case itself, and a permanent cardboard division having apertures fitted over the necks of the bottles is secured below the ledge so formed.

According to that invention a parking case for bottled goods is permanently closed and the case has to be damaged to remove the contents which are accessible only from the bottom of the case.

In my invention herein described, the upper edge of the cardboard case is crossed and folded down inside as doubling strips, a form generally in use, and the inverted ledge so provided is utilized to secure the removable diaphragm before mentioned.

The turned down borders of the case—or doubling strips—may be substituted by a separate bottom of wood or other material suitably fastened to the case.

The diaphragm or cover is holed with punched circular apertures to allow the diaphragm to pass over the bottle necks, and the said apertures may be rendered expansive by the slotting of radial cuts around the apertures to facilitate the forcing of the diaphragm over a series of container necks fitted with stoppers or capsules. The apertures thus segmented, contract automatically below the stoppers, capsules or projecting rings upon the container necks as hereinafter shown.

An alternative arrangement of the diaphragm or cover is effected by dishing up the borders of the diaphragm to engage with the inverted ledge formed by the folded upper edges of the case before described. In this modified form of the diaphragm, the punched holes are not slotted as described for the plain diaphragm, and are arranged to fit lower upon the shoulders of the bottles as shown hereinafter in detail.

Having reference to the accompanying drawings—

Fig. 1 is a general isometric view of a cardboard case as described.

Fig. 2 is a cross section of a case showing the modified diaphragm or cover.

Fig. 3 is a plan of the case as at Fig. 1.

Fig. 4 is a part section of the upper side of the case shown in plan, Fig. 3.

Fig. 5 is a similar part section of the upper side of the case shown in Fig. 2.

Referring to Fig. 1, the shell of the case 1 is turned over at 2, the strip 2<sup>1</sup> being doubled inside the case and riveted, or a separate doubling strip may be secured in the same position by suitable fasteners.

The strip 2<sup>1</sup> forms an inverted ledge at 3, below which the rectangular diaphragm or cover 4 is tightly fitted. The diaphragm is secured in place by flexing it and forcing it into the top of the case and it engages beneath the ledge. The diaphragm is removed in the same way, providing access to the goods without damage to the case.

The diaphragm has holes punched as at 5, through which the necks of the bottle containers project. The containers being held in position also by colls formed by intersecting partitions 8 shown by dotted lines. Slots or gus 7 are formed around the holes to facilitate the passage of the diaphragm over the bottle stoppers as further shown in detail.

The case when of cardboard is riveted as at 6, and may be reinforced at the corners 9 with canvas or other fabric.

Openings 10 are provided in the ends of the case for convenience in handling.

When the case is made of wood, screws, nails or other fasteners are used, and the borders 2<sup>1</sup> are fitted as separate bottoms below which the diaphragm 4 is firmly held.

Fig. 2 is a cross section of a case fitted with the modified dished diaphragm 11, which is shown fitted below the folded border 2<sup>1</sup>. The holes 5 are of larger diameter than the slotted holes shown in Fig. 1, and are arranged to fit tightly against the shoulder of the bottle or container 12, as at 14.

The diaphragm rests upon the intersecting partitions 8 which form separate cells for the bottles.

Fig. 3 is a plan of the case shown in Fig. 1. The diaphragm 4 is in position below the turned over border 2<sup>1</sup>. The bottle stoppers or capsules 13 project above the holes 5. The slotted colls 7 form segments 7<sup>1</sup> which are raised up, under the capsule, or under a projection formed upon the bottle neck when the holes are forced over the bottle. The divisions 6 indicate the partitioned cells below the diaphragm.

Fig. 4 is a part cross section of the upper side of the case shown in Fig. 2, and shows in greater detail the turned down border 2, 2<sup>1</sup>. The diaphragm or cover 4 is tightly fitted below the ledge 3, and when the holes 5 are forced over the bottles, the colls 7 permit the segments 7<sup>1</sup> to be lifted below the capsule or the enlarged bottle neck 13.

Fig. 5 is a part cross section of the upper side of the case indicated at Fig. 2 in which the alternative form of the diaphragm 11 is dished up to fit against the ledge 3 when fitted into position. The hole 5 is of larger diameter to allow the diaphragm to rest on the shoulder of the bottle at 14.

The diaphragm is flexed to facilitate fitting in position below the doubling strips, and is expanded below the said strips as at 5, to form a tight cover.

It is known that cardboard cases have been constructed for safety and protection, but the invention herein described

is applicable to cases of ordinary construction and to cases of various shapes other than the usual rectangular case.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. A packing case for bottled goods permanently closed at the bottom and with an upper edge of double thickness formed either by folding down and securing the edge of the case, or by securing battens on the inside around the mouth of the case, in which a flexible removable diaphragm is fitted into the upper part of the case to engage beneath the lower edge of the inner fold or the battens, the bottle

necks passing through apertures in the said diaphragm which is of such nature that it may be flexed for removal so that the case may be unpacked. 20

2. A packing case for bottled goods as claimed in Claim 1, in which the diaphragm is modified by having its border dished up to engage with the lower edge of the fold or the battens. 25

3. A packing case for bottled goods as claimed in Claims 1 and 2, in which the holes in the diaphragm are radially slotted to form segments which hold the bottle necks when forced over the bottles substantially as shown. 30

Dated this 15th day of June, 1903.  
KENNETH J. MARJON.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1904.

Fig 1

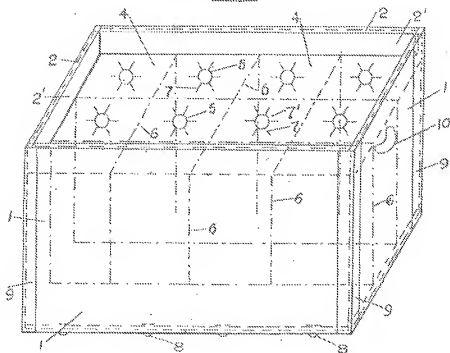
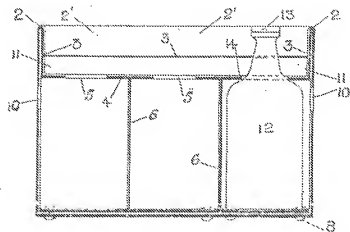


Fig 2



[This Drawing is a reproduction of the Original on a reduced scale.]

Fig 3

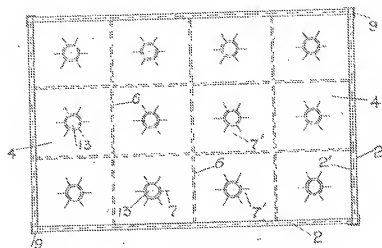


Fig 4

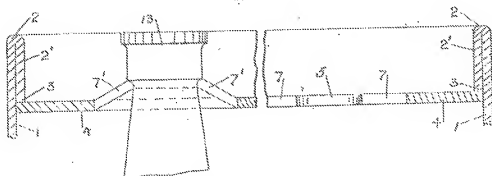
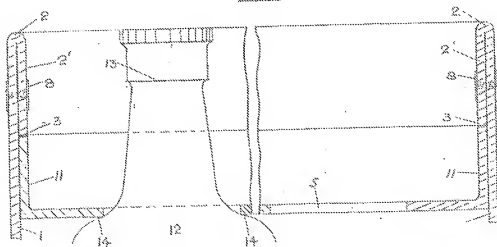


Fig 5



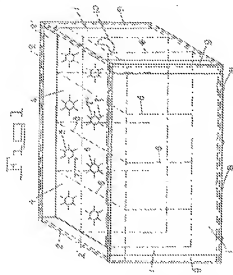


Fig. 1

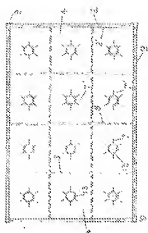


Fig. 3

Fig. 4



Fig. 4

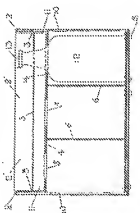


Fig. 2

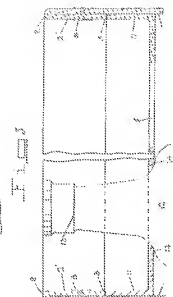


Fig. 3

[This drawing is a reproduction of the original on a reduced scale.]



DRAWINGS ATTACHED



1 262 777

- (21) Application No. 51892/69 (22) Filed 23 Oct. 1969  
 (23) Complete Specification filed 1 Oct. 1970  
 (45) Complete Specification published 9 Feb. 1972  
 (51) International Classification B 65 d 5/24 // S12  
 (52) Index at acceptance  
 BRP 21B 4J 8C1B1 8C1B2 9A  
 (72) Inventor HEDLEY SIMON BRYANT

(54) CONTAINER AND BLANK THEREFOR

(71) We, MARLOW, SON AND HALL LIMITED, a British Company of Temple Street, Bristol, 1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a container erected from a blank of stiff but foldable material, e.g. fibreboard or a suitable plastics material, and to the blank from which the container is erected.

The invention provides a container having a rectangular base panel and four walls which can be readily collapsed outwards in order to expose merchandise lying on the base panel.

According to one aspect of the invention, a container erected from a blank of stiff but foldable material comprises a rectangular base panel, two pairs of opposing walls and inwardly folded corner webs which connect adjacent walls, wherein two opposing walls have extensions which are folded downwards towards the base panel, doubled back on themselves and bonded to form double-layer hingeable panels which reinforce the walls, the extensions terminating in dust flaps which when pulled outwards cause outward collapse of the four walls.

The double-layer hingeable panels are preferably folded over the adjacent corner webs and arranged to hold them releasably in their folded upright position.

Preferably, the other two opposing walls have extensions which are folded down towards the base panel, doubled back on themselves and bonded to form double-layer hingeable panels which are also bonded to their respective walls.

Preferably, at each corner of the container a double-layer hingeable panel is releasably interlocked with a double-layer

[Price 25p]

further panel to hold an adjacent corner web in position.

Accordingly another aspect of the invention, a blank of stiff but foldable material is provided with fold lines for erection into a container as above described.

By way of example the invention will now be described with reference to the accompanying drawings, of which:

Figure 1 is a cruciform blank for erection into a folded carton,

Figure 2 shows the blank after certain portions have been folded and pinned together,

Figure 3 is a perspective view of the blank with one end panel pulled down to reveal the interior,

Figure 4 is a perspective view of the fully erected carton, and

Figure 5 is a perspective view of the blank with its walls collapsed outwards.

Referring to Figures 1 and 2, a die-cut blank of fibreboard is provided with fold lines shown in chain line. The blank has an oblong base panel 10 along the edges of which extend four wall panels 11, 12 of which extend four wall panels 11, 12 connected at the corners by diagonally creased webs 13. The opposing wall panels 11 have outer extensions each of which is divided by parallel fold lines into inner and outer panels 15, 16 and a flap 17. The panels 15 are provided with slots 18 and the panels 16 are formed with pairs of end tabs 19. One of the wall panels 12, which is to be the front wall of the erected carton, has an outer extension divided by parallel fold lines into inner and outer panels 20, 21 and a flap 22. The outer wall panel 22, which is to be the rear wall of the erected carton, has an outer extension divided by parallel fold lines into inner and outer panels 23, 24 a flap 26 and a tongue flap 27. The inner and outer panels associated with the wall panels 12 are provided with small recesses 28 and

the lid panel 26 is formed with a pair of opposing tabs 29.

To obtain the glued blank of Figure 2, adhesive is applied on one face of the blank 5 to panels 20, 24 and on the other face of the blank to panels 15, 25 and also along the region of the fold line between panels 20 and 21. The blank is then folded in 10 to bond panel 24 to panel 12 and panel 25 to the exposed face of panel 24, b) to bond panel 20 to panel 12 and panel 21 to the exposed face of panel 20 in the region only of their common fold line, and c) to bond each panel 16 to the adjacent 15 panel 15. The folded flat glued blank is now as shown in Figure 3 and is ready for supply to a customer for erection and loading.

At this stage each wall panel 11 has 20 hinged to its outer edge a double-layer panel consisting of two panels 15, 16 bonded together and also a flap 17. Each wall panel 12 has been reinforced over its outer portions by a double-layer further panel consisting of two panels 20, 21 or 24, 25 bonded together with panel 20 or 24 as the case may be also bonded to its wall panel 12.

The carton of Figure 4 may be erected 30 in the following manner. The four wall panels 11, 12 are folded upwards at 90° to the base panel 10 whilst simultaneously the corner webs 13 are folded inwards. The double-layer hingeable panels with their 35 flaps 17 are folded downwardly and inwardly through 180° to fold over the tops of the corner webs 13, the tabs 19 on each panel 16 engaging in the recesses 28 of panels 24, 25 and 20, 21 to hold the corner webs releasably in their folded upright position. The flaps 17, 22 constitute dust flaps. The carton with its four reinforced side walls is now ready for top 40 loading with merchandise. After loading, the hinged lid panel is closed down, its lock-in-flap 27 entering a narrow space provided between the panels 20, 21 and becoming releasably secured therein by engagement of its lid tabs 29 in the slots 45 18. The carton has a recessed lid for facilitating vertical stacking.

To remove the merchandise or to inspect it in position on the base panel 10, the lid is pulled upwards about its hinge 55 forcing the tabs 29 out of engagement with the slots 18. Then the two opposing dust flaps 17 are grasped between thumbs and forefingers and pulled outwards in opposite directions, thereby causing the double-layer 60 panels which are hinged to the wall panels 11 to pivot upwards about their respective hinge lines and force their tabs 19 out of engagement with the recesses 28. This frees the corner webs 13 for unfolding. 65 Continued pulling on the dust flaps 17

causes the four wall panels 11, 12 and the corner webs 13 to collapse outwards to substantially the position shown in Figure 5. The exposed merchandise on the base panel may then be easily removed. If only inspection is required, and the merchandise is of a suitable nature and size to permit re-erection, the carton may subsequently be readily re-erected and reloaded with the merchandise still in position. 75

Typical merchandise for the container is a block of ice cream or mousse which may be enclosed if desired in a transparent plastics inner lining or bag.

In a modified version of the container, the lid panel 26 and lock-in flap 27 are 80 omitted to provide an open top container.

#### WHAT WE CLAIM IS:-

1. A container erected from a blank of stiff but foldable material comprising a 85 rectangular base panel, two pairs of opposing walls and inwardly folded corner webs which connect adjacent walls, wherein two opposing walls have extensions which are folded downwards towards the base 90 panel, doubled back on themselves and bonded to form double-layer hingeable panels which reinforce the walls, the extensions terminating in dust flaps which when pulled outwards cause outward col- 95 lapse of the four walls.

2. A container according to claim 1, wherein the double-layer hingeable panels are folded over the adjacent corner webs and arranged to hold them releasably in 100 their folded upright position.

3. A container according to claim 1, wherein the other two opposing walls have extensions which are folded down towards the base panel, doubled back on themselves 105 and bonded to form further double-layer panels which are also bonded to their respective walls.

4. A container according to claim 3, wherein at each corner of the container a double-layer hingeable panel is releasably interlocked with a double-layer further panel to hold an adjacent corner web in 110 position.

5. A container according to claim 3, wherein the further double-layer panels terminate in dust flaps. 115

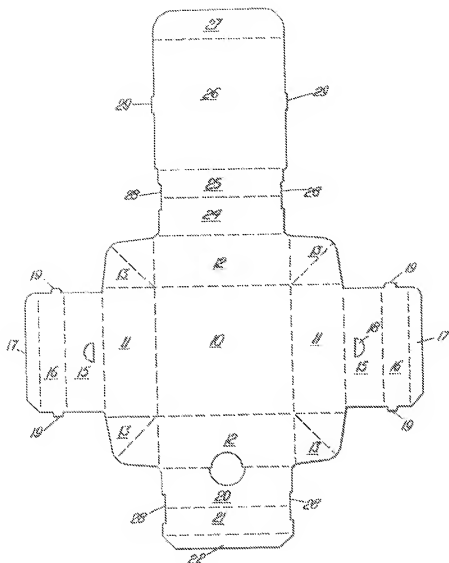
6. A carton substantially as described with reference to and as illustrated in Figures 3 to 5 of the accompanying draw- 120 ings.

7. A blank of stiff but foldable material for erection into the container according to claim 1 which has been cut and formed with fold lines substantially as described 125 with reference to and as illustrated in Figure 1 of the accompanying drawings.

B. D. FREEMAN.

Chartered Patent Agent.

For and on behalf of the Applicants.

*Fig. 1*

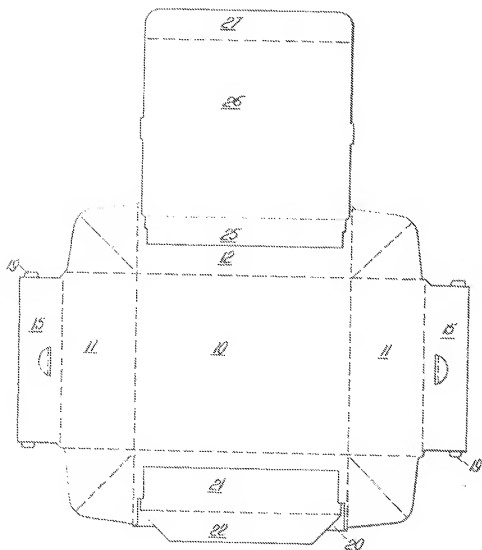
1,262,777

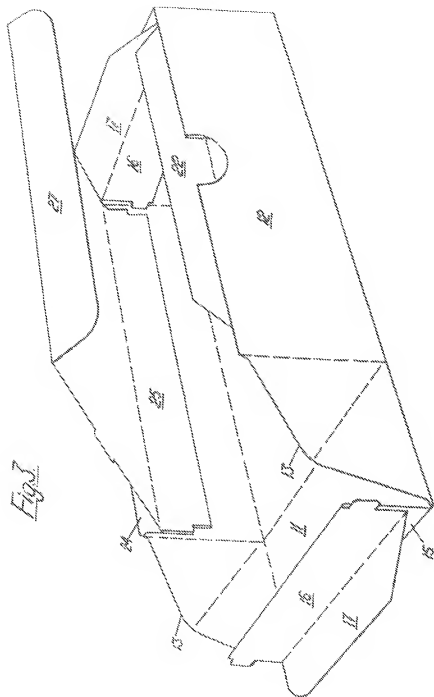
COMPLETE SPECIFICATION

5 SHEETS

This drawing is a reproduction of  
the Original on a reduced scale.

SHEET 2

*Fig 2*



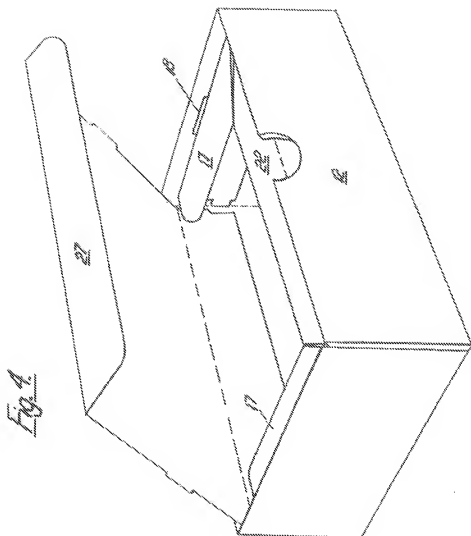
1,262,777

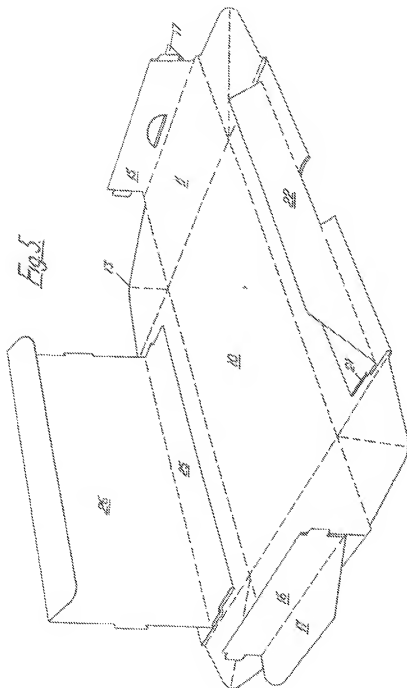
COMPLETE SPECIFICATION

5 SHEETS

This drawing is a reproduction of  
the Original on a reduced scale.

SHEET 4





## EXPOSÉ D'INVENTION

Publié le 10 mai 1927

N° 93304

(Demande déposée le 1 juillet 1919, 1914)

Classe 46 a

## BREVET PRINCIPAL

Horneo PERRET, Lausanne (Suisse).

Récipient perfectionné fait d'une seule pièce découpée dans du carton.

La présente invention a pour objet un récipient d'une seule pièce, découpée dans du carton, dans lequel chaque face latérale est formée par une première paroi faisant corps avec le fond et pouvant être relevée sur celui-ci ainsi que par une seconde paroi faisant corps avec la première et pouvant être rabattue sur elle à l'intérieur du récipient. Les deux dites parois de l'une des faces au moins, emboîtant entre elles une languette, faisant corps avec la première paroi de la face adjacente, dans le but d'assurer la liaison des différentes faces latérales entre elles entraînant en ce qu'il comporte, en son intérieur, une pièce, munie des faces latérales faisant corps avec un fond, ces faces pouvant être appliquées contre les parois du récipient pour empêcher que ses secondes parois puissent être écartées de façon à libérer des languettes assurant la liaison des différentes faces latérales.

Le dessin ci-joint donne, à titre d'exemple, deux formes d'exécution de la présente invention.

La fig. 1 est une vue en plan de la première forme d'exécution;

La fig. 2 en est une vue en coupe suivant la ligne A—B de la fig. 1;

La fig. 3 est une vue en plan de la seconde forme d'exécution;

La fig. 4 en est une vue en coupe suivant la ligne C—D de la fig. 3.

Le récipient perfectionné fait d'une seule pièce dans du carton a ses faces latérales constituées par des surfaces emportant une partie *a*, susceptible d'être relevée sur le fond *b* et une seconde partie *c* pouvant être rabattue sur la partie *a* à l'intérieur du récipient de façon à emprisonner entre elles et la partie *a* des languettes *d* prévues aux parties *a* des faces latérales, immédiatement voisines, ce qui a pour effet de constituer les angles aux faces du récipient; celui-ci emporte en son intérieur une pièce munie de faces latérales *e* faisant corps avec son fond *f* et pouvant être appliquées contre les parois du récipient de façon à empêcher que les secondes parties *c* puissent être écartées des parties *a* de façon à libérer les languettes *d* assurant la liaison des différentes faces latérales.

Suivant la seconde forme d'exécution donnée par les fig. 3 et 4, la pièce placée à



l'intérieur du récipient est assise dans son fond d'ouvertures et est disposée de telle façon dans le récipient qu'elle constitue un support pour de petits récipients à destinés à contenir par exemple un produit pharmacologique et dont le récipient perfectionné sert d'emballage.

#### REVENDICATION :

Récipient, fait d'une seule pièce dérivée d'un carton, dans lequel chaque face latérale est formée par une première paroi faisant corps avec le fond et pouvant être relevée sur celui-ci ainsi que par une seconde paroi faisant corps avec la première et pouvant être rabattue sur elle à l'intérieur du récipient, les deux dites parois de l'une des faces au moins, emprisonnant entre elles une languette faisant corps avec la première paroi de la face adjacente, dans le but d'assurer

une liaison des différentes faces latérales entre elles, caractérisée en ce qu'il comporte en son intérieur une pièce, munie de faces latérales faisant corps avec un fond, trées pouvant être appliquées contre les parois du récipient pour empêcher que ses seconde parois puissent être écartées de façon à libérer les languettes assurant la liaison des différentes faces latérales.

#### NOUVEAU REVENDICATION :

Récipient, conforme à la revendication et dans lequel la pièce placée dans son intérieur présente dans son fond des ouvertures, et est disposée de façon telle, dans le récipient, qu'elle constitue un support pour de petits récipients dont le récipient sert d'emballage.

HENRI PERRIET.



(15) World Intellectual Property Organization  
International Bureau



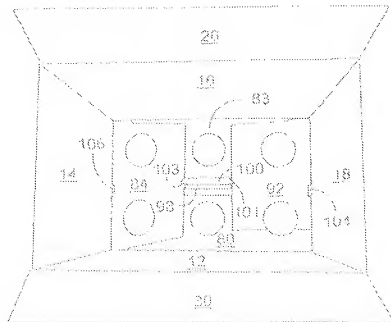
(13) International Publication Date  
28 August 2003 (2003/08/28)

PCT

(10) International Publication Number  
WO 03/070580 A1

- (51) International Patent Classification: H05D 5/02 (2006.01)
- (52) International Application Number: PCT/JP00/01331
- (53) International Filing Date: 11 January 2000 (2000/01/11)
- (54) Filing Language: English
- (56) Publication Language: English
- (57) Priority Data:  
JP 2000-000000 (11 January 2000) (JP 2000-000000)
- (58) Applicant (as filed): SHIMADZU SEIMITSUKO K.K., 1-1-1, Higashi-cho, Shimizu-shi, Shizuoka-ken, 424-8602, Japan
- (59) Designated States (as filed): AT, AU, BE, BR, CA, CH, CN, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IL, IN, JP, KR, LT, LU, LV, MC, MG, MK, MN, NL, NO, NZ, PL, PT, RO, RU, SE, SI, SK, SL, SV, TH, TR, UA, US, VE, ZA, ZW
- (60) Designated States (as filed): AT, AU, BE, BR, CA, CH, CN, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IL, IN, JP, KR, LT, LU, LV, MC, MG, MK, MN, NL, NO, NZ, PL, PT, RO, RU, SE, SI, SK, SL, SV, TH, TR, UA, US, VE, ZA, ZW
- (61) Applicant (as filed): SHIMADZU SEIMITSUKO K.K., 1-1-1, Higashi-cho, Shimizu-shi, Shizuoka-ken, 424-8602, Japan
- (62) Inventor: HIRAI, Patrick (HIREI, Patrick) (JP)
- (63) Publication: 2003/070580 A1

102  
103  
104  
105  
106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267  
268  
269  
270  
271  
272  
273  
274  
275  
276  
277  
278  
279  
280  
281  
282  
283  
284  
285  
286  
287  
288  
289  
290  
291  
292  
293  
294  
295  
296  
297  
298  
299  
300  
301  
302  
303  
304  
305  
306  
307  
308  
309  
310  
311  
312  
313  
314  
315  
316  
317  
318  
319  
320  
321  
322  
323  
324  
325  
326  
327  
328  
329  
330  
331  
332  
333  
334  
335  
336  
337  
338  
339  
340  
341  
342  
343  
344  
345  
346  
347  
348  
349  
350  
351  
352  
353  
354  
355  
356  
357  
358  
359  
360  
361  
362  
363  
364  
365  
366  
367  
368  
369  
370  
371  
372  
373  
374  
375  
376  
377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414  
415  
416  
417  
418  
419  
420  
421  
422  
423  
424  
425  
426  
427  
428  
429  
430  
431  
432  
433  
434  
435  
436  
437  
438  
439  
440  
441  
442  
443  
444  
445  
446  
447  
448  
449  
450  
451  
452  
453  
454  
455  
456  
457  
458  
459  
460  
461  
462  
463  
464  
465  
466  
467  
468  
469  
470  
471  
472  
473  
474  
475  
476  
477  
478  
479  
480  
481  
482  
483  
484  
485  
486  
487  
488  
489  
490  
491  
492  
493  
494  
495  
496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510  
511  
512  
513  
514  
515  
516  
517  
518  
519  
520  
521  
522  
523  
524  
525  
526  
527  
528  
529  
530  
531  
532  
533  
534  
535  
536  
537  
538  
539  
540  
541  
542  
543  
544  
545  
546  
547  
548  
549  
550  
551  
552  
553  
554  
555  
556  
557  
558  
559  
560  
561  
562  
563  
564  
565  
566  
567  
568  
569  
570  
571  
572  
573  
574  
575  
576  
577  
578  
579  
580  
581  
582  
583  
584  
585  
586  
587  
588  
589  
590  
591  
592  
593  
594  
595  
596  
597  
598  
599  
600  
601  
602  
603  
604  
605  
606  
607  
608  
609  
610  
611  
612  
613  
614  
615  
616  
617  
618  
619  
620  
621  
622  
623  
624  
625  
626  
627  
628  
629  
630  
631  
632  
633  
634  
635  
636  
637  
638  
639  
640  
641  
642  
643  
644  
645  
646  
647  
648  
649  
650  
651  
652  
653  
654  
655  
656  
657  
658  
659  
660  
661  
662  
663  
664  
665  
666  
667  
668  
669  
670  
671  
672  
673  
674  
675  
676  
677  
678  
679  
680  
681  
682  
683  
684  
685  
686  
687  
688  
689  
690  
691  
692  
693  
694  
695  
696  
697  
698  
699  
700  
701  
702  
703  
704  
705  
706  
707  
708  
709  
710  
711  
712  
713  
714  
715  
716  
717  
718  
719  
720  
721  
722  
723  
724  
725  
726  
727  
728  
729  
730  
731  
732  
733  
734  
735  
736  
737  
738  
739  
740  
741  
742  
743  
744  
745  
746  
747  
748  
749  
750  
751  
752  
753  
754  
755  
756  
757  
758  
759  
760  
761  
762  
763  
764  
765  
766  
767  
768  
769  
770  
771  
772  
773  
774  
775  
776  
777  
778  
779  
780  
781  
782  
783  
784  
785  
786  
787  
788  
789  
790  
791  
792  
793  
794  
795  
796  
797  
798  
799  
800  
801  
802  
803  
804  
805  
806  
807  
808  
809  
810  
811  
812  
813  
814  
815  
816  
817  
818  
819  
820  
821  
822  
823  
824  
825  
826  
827  
828  
829  
830  
831  
832  
833  
834  
835  
836  
837  
838  
839  
840  
841  
842  
843  
844  
845  
846  
847  
848  
849  
850  
851  
852  
853  
854  
855  
856  
857  
858  
859  
860  
861  
862  
863  
864  
865  
866  
867  
868  
869  
870  
871  
872  
873  
874  
875  
876  
877  
878  
879  
880  
881  
882  
883  
884  
885  
886  
887  
888  
889  
890  
891  
892  
893  
894  
895  
896  
897  
898  
899  
900  
901  
902  
903  
904  
905  
906  
907  
908  
909  
910  
911  
912  
913  
914  
915  
916  
917  
918  
919  
920  
921  
922  
923  
924  
925  
926  
927  
928  
929  
930  
931  
932  
933  
934  
935  
936  
937  
938  
939  
940  
941  
942  
943  
944  
945  
946  
947  
948  
949  
950  
951  
952  
953  
954  
955  
956  
957  
958  
959  
960  
961  
962  
963  
964  
965  
966  
967  
968  
969  
970  
971  
972  
973  
974  
975  
976  
977  
978  
979  
980  
981  
982  
983  
984  
985  
986  
987  
988  
989  
990  
991  
992  
993  
994  
995  
996  
997  
998  
999  
1000



(54) Title: A container for holding a container having a plurality of openings and a method for holding the container.

## CARTON AND CARTON BLANK

Background of the invention

- 5 The invention relates to a carton and blank for forming a carton for carrying a plurality of articles, for example bottles, and an end closure structure.

The invention is particularly useful where it is desirable for cartons containing articles to be enclosed, to protect the or each article, for example, bottles. Furthermore, the carton should  
(10) be re-loadable to be re-used.

One example of a re-loadable sleeve formed from one or more blocks of preformed is found in US 2,075,410 which illustrates a carton having integral hinged top, which is re-loadable.

- 15 In US 1,041,519, there is illustrated a carton with a top structure formed from four flaps. Each flap is provided with a locking tab to engage the opposing flap. A problem associated with this carton is that each of the flaps needs to be carefully aligned in order to be secured together as each flap comprises a locking tab. The article is contained within the carton of US 714 which makes it possible for the panels to be folded and manipulated. However, in  
20 automated packing, it is necessary to load articles into the cartons at high speeds. Therefore, it is undesirable to have a complicated arrangement for forming an end closure structure.

Summary of the invention

- 25 The present invention and its preferred embodiments, see, to overcome or at least mitigate the problems of the prior art.

A first aspect of the present invention provides a carton having a plurality of wall panels for forming a tubular structure and an end wall arrangement for closing one end of the tubular structure. The end wall arrangement is formed from at least three end flaps hingedly  
30

- 2 -

connected to corresponding wall panels of the structure, wherein one of the flaps is provided with a locking means to engage the other flaps, thereby to secure the flaps together.

Preferably, the locking means may comprise a tab extending from the end edge of said first flap adapted to be received in an aperture formed in the opposing flap to secure the first and opposing flaps together.

More preferably, the locking means may further comprise a tongue extending from a side edge of said first flap for engagement with an adjacent wall panel and wherein the said adjacent wall panel may be formed with a notch or opening to receive the tongue.

Preferably, the locking means further comprises a second tongue extending from a side edge of said first flap for engagement with an adjacent wall panel and wherein the said adjacent wall panel is formed with a notch or opening to receive the tongue.

Optionally the carton comprises a vertical tubular body and the end wall arrangement may be recessed.

Each adjacent wall panel may further comprise a reinforcing panel folded to be disposed on the inside surface of the tubular body and wherein the reinforcing panel may be formed with the notch or opening for engagement with the tongue.

According to an optional feature of this aspect of the present invention, the recessed end wall structure may have an aperture for receiving a top portion of the article.

Preferably, the handle aperture may be formed in the tubular body portion at a position above the recessed end wall structure.

More preferably, a second handle panel may be formed in the tubular body at a position above the recessed end wall structure and opposed the first aperture.

- 3 -

A second aspect of the invention provides a carton having a tubular body formed of first and second opposed walls interconnected by third and fourth walls and an end wall formed of at least three end flaps, one of the end flaps having a locking tab that engages the other flaps to secure all the flaps together, said one flap is connected to the first wall, the other flaps include flaps connected respectively to the second and third walls. Preferably, the other flaps further include a flap connected to the fourth wall.

A third aspect of the present invention provides a blank having a plurality of side panels hinged together in series for forming a tubular structure and an end wall arrangement comprising at least three end flaps hingedly connected to corresponding side panels wherein one of the flaps is provided with a locking means to engage the other flaps, thereby to secure the flaps together when in a set up condition. Preferably, the locking means may comprise a tab extending from the end edge of said first flap and an aperture formed in the opposing flap.

According to an optional feature of the second aspect of the invention, the locking means may further comprise a tongue extending from a side edge of the first flap and the adjacent flap is formed with a notch or opening adapted to receive the tongue when in a set up carton.

Preferably, the locking means further comprise a second tongue extending from a side edge of said first flap for engagement with an adjacent wall panel and wherein the said adjacent wall panel is formed with a notch or opening to receive the tongue.

According to another optional feature of the second aspect of the invention, each flap may comprise a reinforcing panel folded to be disposed on the inside surface of the corresponding side panels.

According to a further optional feature of the second aspect of the present invention the each end flap may have one or more apertures for receiving a top portion of an article in a set up carton.

According to a yet further optional feature of the second aspect of the present invention, a handle aperture may be formed in the end flap.

A fourth aspect of the invention provides a blank for forming a carton having a tubular body formed of first and second opposed wall panels interconnected by third and fourth wall panels and an end wall formed of at least three end flaps, one of the end flaps having a locking tab that engages the other flaps to secure all the flaps together in a set-up condition, said one flap is connected to the first wall panel, the other flap includes flaps connected respectively to the second and third wall panels.

Preferably, the other flaps further include a flap connected to the fourth wall panel.

#### Brief Description of the Drawings

Exemplary embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

FIGURE 1 illustrates a blank for forming a carton according to one embodiment of the invention;

FIGURES 2, 3, 4, 5, 6 and 7 illustrate the construction of an end wall arrangement of the blank shown in Figure 1;

FIGURES 8 illustrates the carton in a partially set-up condition with the end wall arrangement constructed;

FIGURE 9 is a perspective view from below illustrating the end wall arrangement in a set-up condition; and

FIGURE 10 illustrates the carton in a set-up and loaded condition.

Detailed Description of the Preferred Embodiment(s)

Referring to the drawings, and in particular Figure 1, there is shown an embodiment of a unitary blank for forming a carton made from paperboard or similar foldable sheet material.

It is envisaged that two or more blanks could be used joined without departing from the scope of the invention. It is envisaged that the carton is a fully enclosed type, although it will be recognized that the invention could be applied to a vented-end type carton or top gripping clip without departing from the scope of the invention.

Turning to Figure 1, the blank 10 comprises a first side wall panel 12, a second side wall panel 14, a third side wall panel 16 and a fourth side wall panel 18 hingedly connected one to the next in series along fold lines 20, 22 and 24 respectively.

In use, the first, second, third and fourth side wall panels are secured together to form a tubular structure, by suitable scoring means known in the art. In this embodiment, the securing means is provided by a securing flap 34 hingedly connected to the first side wall panel 12 along fold line 36. In these embodiments with a recessed end wall structure, securing flap 35 is also hingedly connected to securing flap 34 along fold line 37.

One end of the tubular structure is provided with a base panel arrangement for closing that end, in which there comprises a first base panel 26 hingedly connected to the third side wall panel 16 along fold line 28 and a second base wall panel 30 hingedly connected to the first side wall panel 12 along fold line 32.

There further comprises an end closure arrangement which is provided by three or more end flap(s). In this embodiment, there comprises four end flaps 40, 42, 44 and 46; each end flap is hingedly connected to a corresponding side wall panel. Therefore, end flap 40 is hingedly connected to first side wall panel 12 along fold line 41; second end flap 42 is hingedly connected to second side wall panel 14 along fold line 43; third end flap 44 is hingedly connected to third side wall panel 16 along fold line 45; and fourth end flap 46 is hingedly connected to fourth side wall panel 18 along fold line 47.



- 6 -

One of the end flaps 80 is provided with locking means to engage the other flaps, thereby to secure them together. It can be seen from Figure 1 that the locking means comprises a locking tab 100 extending from first end flap 80. In this embodiment, it is hingedly connected thereto along fold line 102 and extending outwardly beyond its end edge. A corresponding locking aperture 98 is struck from third end flap 83 proximate the end edge of end flap 83. In some embodiments, aperture 98 further conicalizes opposed cut lines which cause the outer parts of aperture to flex when the locking tab passes through it in order to reduce the likelihood of locking tab 100 defencing during the engagement process.

Locking tab 100 is preferably 'arrowhead' in shape with a shoulder portion of an increased width and a neck portion of a reduced width so as to define a pair of recesses 101, 103, illustrated in Figure 1. In use, the recesses 101, 103 engage the end edges of the second and fourth flaps 84, 92 as shown in Figure 9, thereby to secure all the flaps in a substantially face-to-face relationship, described in more detail below.

In certain of embodiments, the or each end flap further comprises one or more openings 96, for receiving an upper portion of an article, for example a bottle.

Preferably, the end closure arrangement is recessed below the upper edges of the side wall panels 12, 14, 16, 18 to create a carton that reveals an upper portion of the bottles while providing a support structure to the bottles. Also, the bottle tops etc positioned below the upper edges of the carton to protect them in transit. In order to achieve this, each of the end flaps are provided with a reinforcing panel to hingedly interconnect the side wall panels to the end flaps. Therefore, in this embodiment, there is provided a reinforcing panel 42, hingedly interconnecting end flap 80 to first side wall panel 12 along fold lines 82 and 44 respectively. Similarly, reinforcing panels 46, 38 and 50 are provided to hingedly interconnect end flaps 84, 83 and 92 to side wall panels 14, 16 and 18 respectively along fold lines 86 and 48; 90 and 40, and 94 and 32.

In these embodiments with a recessed end wall arrangement, the upper end flap 50 is provided with a tongue 100 extending from a side edge for engagement with a notch or opening 100 formed, at least in part, in the reinforcing panel 40. Preferably, there further comprises a second tongue 110 protruding from the opposing side edge of end flap 50 and adapted to be engaged with a second notch 101 struck from at least part of reinforcing panel 50.

In these embodiments where the end - flange arrangement is recessed, it is possible to provide one or more handle panels positioned above the end wall arrangement. Thus, in this embodiment, there comprises a hand aperture 72a struck from the reinforcing panel 42 and a corresponding hand aperture 70a struck from an upper portion of side panel 12. In use, hand apertures 70a and 72a are aligned. There may further comprise tabs 74a and 76a extending into the corresponding apertures 70a, 72a and foldable to improve comfort of the user. Fold lines 78a allow the tab to flex. Similar hand apertures 70b, 72b, 70c, 72c and 70d, 72d may be provided in the other walls of the cation which are struck from corresponding reinforcing panels 40, 46 and 50 and side wall panels 14, 16 and 18.

The reinforcing panels 44, 46, 48, 50 may be longitudinally connected together along fold lines 54, 56 and 58 respectively and in which case there may also comprise a slot 5 to aid the folding process.

Turning to the construction of the cation from the cation blank as illustrated in Figure 1, each blank requires a series of sequential *folding* and *gluing* operations which are preferably performed by a straight line machine, so that the cation and/or blank are not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements.

The first stage is to form the end wall arrangement, by which the end flaps 80, 84, 83 and 92 are folded axially in direction X (Figure 2) into face contacting arrangement with corresponding side wall panels 12, 14, 16 and 18 respectively. Reinforcing panels 42, 46, 48 and 50 are folded over into face contacting arrangement with the corresponding side wall panels along fold lines 44, 48, 46 and 52 respectively, as shown in Figure 3. Optionally, the

- 8 -

reinforcing panels are secured to the side wall panels by glue (as shown in handling) or other means known in the art so that the handle moves 70, 72 are brought into alignment as shown in Figure 3.

- 5 The end flaps 84, 84, 83 and 92 are then folded about fold lines 82, 86, 90 and 94 in an upward direction Y shown in Figure 4.

Of course, in those embodiments without reinforcing panels, then the construction process would correspond to the next section only.

10

The tubular structure of the cation is formed whereby the side wall panels 12 and 18 are folded upwardly towards each other and side wall panel 12 placed in face contacting arrangement with securing flaps 34 and 38 and is secured thereto by glue or other securing means known in the art, so that the cation is in a flat collapsed condition as shown in Figure 5 ready to be supplied to the end user.

15

The tubular structure is then formed by separating the side wall panels 12, 14, 16 and 18 and the end wall arrangement is constructed as shown in Figures 6, 7 and 8. In some embodiments the articles are loaded before forming the end wall arrangement, although in this embodiment, the end wall is formed first and then the bottles are loaded from below.

20

The end flaps 84 and 92 are folded downwardly along fold lines 86 and 94 and then end flap 83 with locking aperture 90 is folded downwardly into face contacting arrangement with end flaps 84 and 92. Finally, end flap 80 is folded downwardly along fold line 82, as shown in Figure 7. At this point, the article openings 96 are in alignment so the articles can be loaded from below and into the openings 94. One advantage is that the end flaps are then held in position as they are secured together, described in more detail below.

25

- 30 The end flaps are secured together by punching the locking rib 100 through the locking aperture 98 so that the cation is in a position as shown in Figure 8. Preferably, the shoulders of the locking rib 100 pass beyond the end flaps 84 and 92 to engage the undersides of the

and flaps 84 and 92 so that the end edges of these flaps 84-92 are received in the recesses 101 and 103 as shown in Figure 9. Thus, the locking means of the upper flap engages the other flaps, thereby to secure all the flaps together.

In those embodiments with the or each element 106, 110, they are engaged in the notches 106, 107 respectively, as shown in Figure 7.

Finally, if the articles B have not yet been loaded then this is done and the base panels 26 and 30 are folded inwardly about fold lines 23 and 32 respectively and secured together in overlapping arrangement by glue or other means known in the art. Thus, the carton is in a set up and loaded condition ready to be supplied to an end user, as shown in Figure 10.

In order to gain access to the articles, the upper end flap 80 is pulled in an upward direction so that the locking tab 100 is disengaged from the other flap and/or the notches. This action releases the other flaps so that they can be folded in an upward direction to reveal the articles. To replace the access structure then the process is reversed.

The present invention and its preferred embodiment relate to an arrangement for providing a releasable access structure in a fully enclosed carton. However, it is anticipated that the invention can be applied to a variety of carriers and is not limited to those of the fully enclosed type heretofore described and could be used for numerous applications for example a wrap-around carton.

It will be recognized that as used herein, directional references such as "top", "base", "end", "side", "inner", "outer", "upper" and "lower" do not limit the respective panels to such orientation, but merely serve to distinguish these panels from one another. Any reference to hinged connection should not be construed as necessarily referring to a simple fold line only, indeed it is envisaged that hinged connection can be formed from one or more of one of the following, a score line, a frangible line or a fold line, without departing from the scope of invention.

- 10 -

It should be understood that various changes may be made within the scope of the present invention, for example, the size and shape of the panels and separator may be adjusted to accommodate articles of differing size or shape, alternative top and base closure structures may be used. The carton may accommodate more than one article in different arrays. Furthermore, in those embodiments employing a locking means with the in each tongue 108, 110 and corresponding notch 106, 104, it is not necessary for the locking function provided by recesses 106, 104 to be incorporated in the invention and vice versa.

- 11 -

CLAIMS

1. A carton including first, second, third and fourth wall panels for forming a tubular structure and an end wall arrangement for closing one end of the tubular structure, the first and third wall panels being opposed to each other, the second and fourth wall panel being opposed to each other, the end wall arrangement comprising first, second and third end flaps longitudinally connected to the first, second and third wall panels respectively, wherein the first end flap comprises locking means for engagement at least with the second and third end flaps, to secure the first, second and third flaps together.
2. A carton as claimed in claim 1 wherein the locking means comprises a tab extending from an end edge of said first end flap to be received in a locking aperture in the third end flap.
3. A carton as claimed in claim 2 wherein the locking means further comprises a first tongue extending from a side edge of said first flap for engagement with one of the second and third wall panels, and wherein the said end wall panel is formed with a notch or opening to receive the first tongue.
4. A carton as claimed in claim 3 wherein the locking means further comprises a second tongue extending from a side edge of said first flap for engagement with the other of the second and third wall panels, and wherein the said other wall panel is formed with a notch or opening to receive the second tongue.
5. A carton as claimed in claim 3 or claim 4 wherein the tubular structure has a vertical tubular lock, and the end wall arrangement is recessed.
6. A carton as claimed in claim 5 wherein each of the second and fourth wall panels comprises a panel body and a reinforcing panel foldably connected to the panel body, the reinforcing panel being folded to be disposed on an inside surface of the panel body, and wherein the reinforcing panel is formed with a notch or opening.

7. A carton as claimed in claim 5 or claim 6 wherein the recessed end wall arrangement has an opening for receiving a top portion of the article.

8. A carton as claimed in claim 7 wherein a first handle aperture is formed in the tubular structure at a position above the recessed end wall arrangement.

9. A carton as claimed in claim 8 wherein a second handle aperture is formed in the tubular structure at a position above the recessed end wall arrangement and opposing the first handle aperture.

10. A carton as claimed in claim 2 wherein the lid has a shoulder for engagement with an underside of the second end flap.

11. A carton having a tubular body comprising first and third opposed walls interconnected by second and fourth walls and an end wall comprising first, second and third end flaps, the first end flap having a locking tab that engages the second and third end flaps to secure the first, second and third end flaps together, said first, second and third end flaps being connected to the first, second and third walls respectively, the locking tab being disposed in a locking aperture in the third end flap and in engagement with an underside of the second end flap.

12. A carton as claimed in claim 11 wherein the end wall further comprises a fourth end flap connected to the fourth wall.

13. A blank including first, second, third and fourth side panels hinged together to serve for forming a tubular structure and an end wall arrangement comprising first, second and third end flaps hingedly connected to the first, second and third side panels respectively, wherein the first end flap is provided with locking means for engagement at least with the second and third end flaps to secure the first, second and third end flaps together in a setup condition.

14. A blank as claimed in claim 13 wherein the locking means comprises a rib extending from an end edge of said first flap to be received in a locking aperture formed in the third end flap.

15. A blank as claimed in claim 14 wherein the locking means further comprises a first tongue extending from a side edge of said first end flap, and one of the second and fourth side panels is formed with a notch or opening for receiving the first tongue.

16. A carton as claimed in claim 15 wherein the locking means further comprises a second tongue extending from a side edge of said first end flap for engagement with the other of the second and fourth panels, and wherein the said other side panel is formed with a notch or opening for receiving the second tongue.

17. A blank as claimed in any of claims 13 to 16 wherein each of the second and fourth side panels comprises a panel body and a reinforcing panel foldably connected to the panel body, the reinforcing panel being folded to be disposed on an inside surface of the panel body in a set up condition.

18. A blank as claimed in any of claims 13 to 17 wherein each of the end flaps has one or more openings for receiving a top portion of an article in a set up carton.

19. A blank as claimed in any of claims 13 to 18 wherein a handle aperture is formed in at least one of the side panels.

20. A blank for forming a carton having a tubular structure comprising first and third opposed wall panels interconnected by second and fourth wall panels and an end wall comprising first, second and third end flaps, the first end flap having a locking rib that engages the second and third end flaps to secure the first, second and third end flaps together in a set up condition, said first, second and third end flaps being connected to the first, second and third wall panels respectively.



- 14 -

21. A flaps as claimed in claim 20 wherein the first wall further comprises a fourth end flap connected to the fourth wall panel.

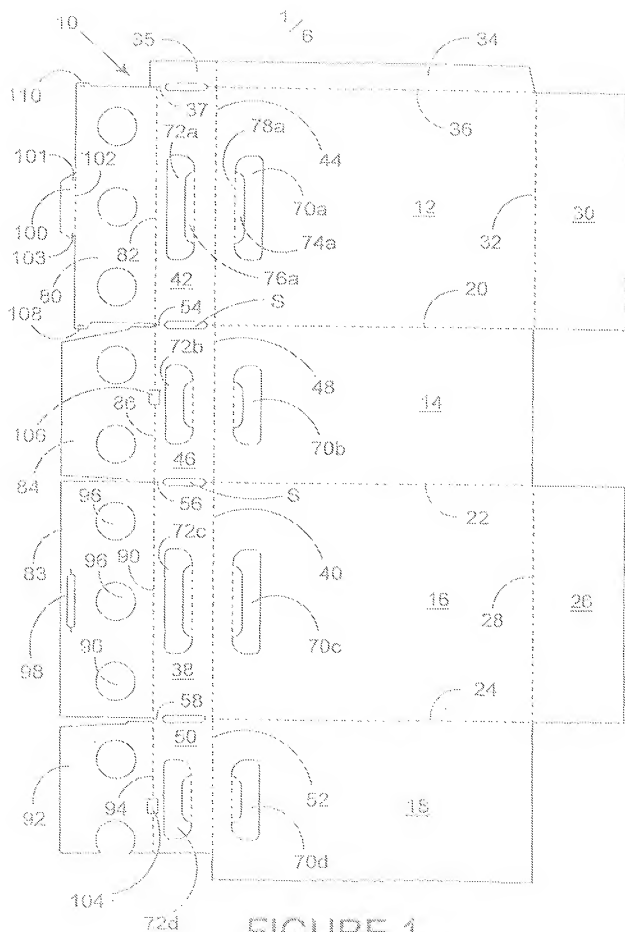
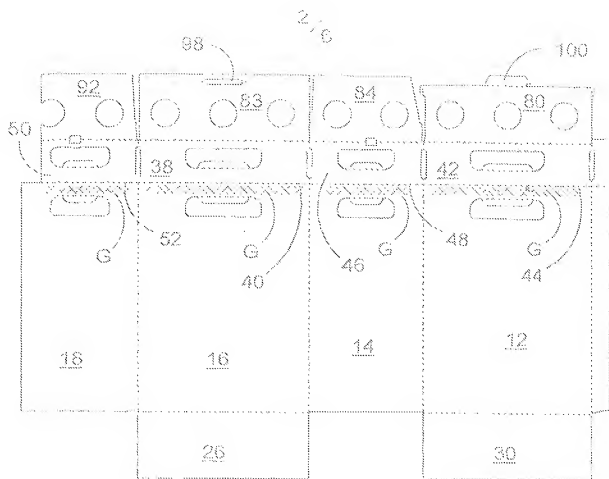
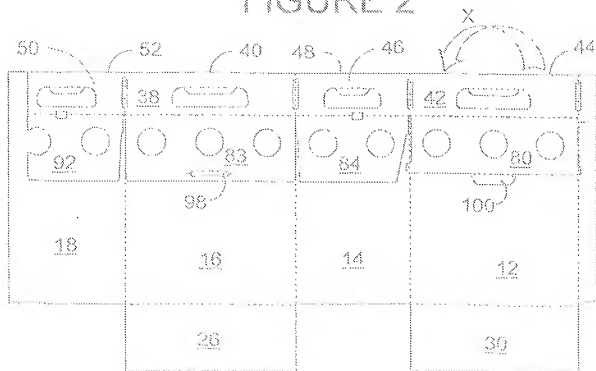


FIGURE 1



## FIGURE 2



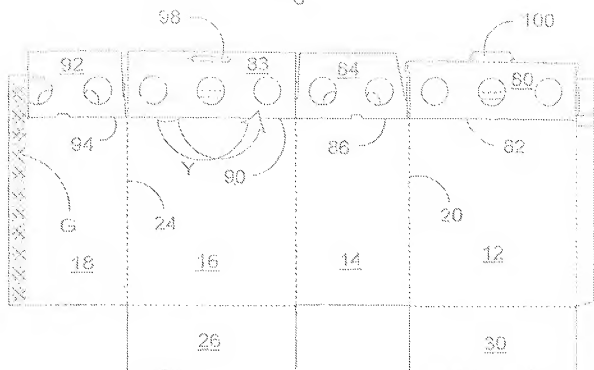


FIGURE 4

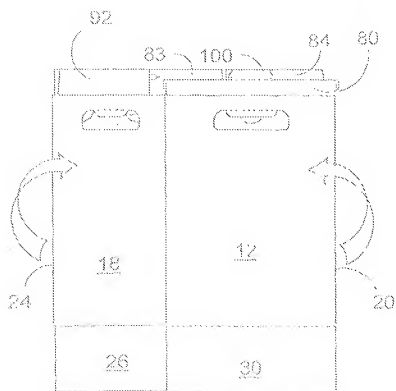
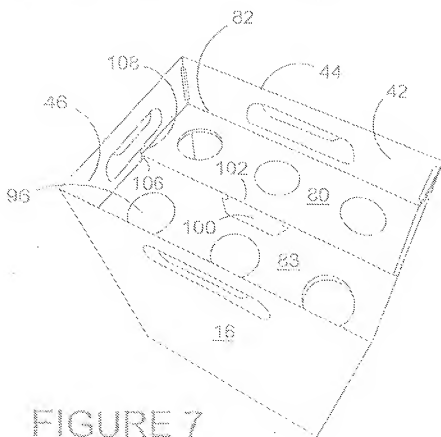
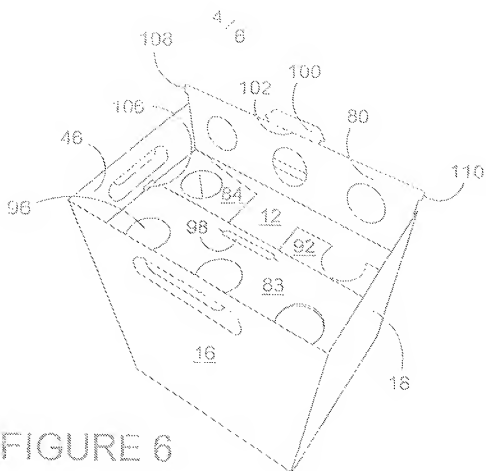


FIGURE 5



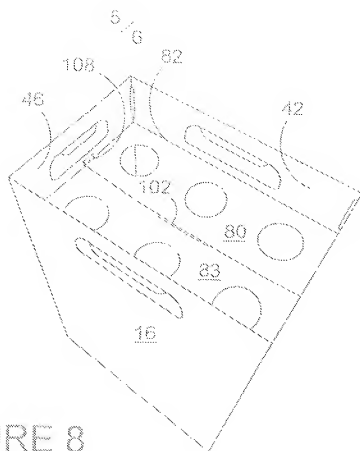


FIGURE 8

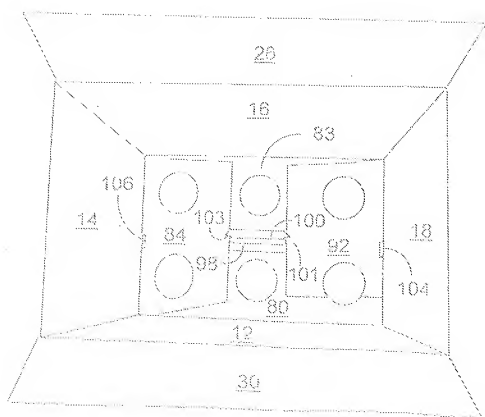


FIGURE 9

6/6

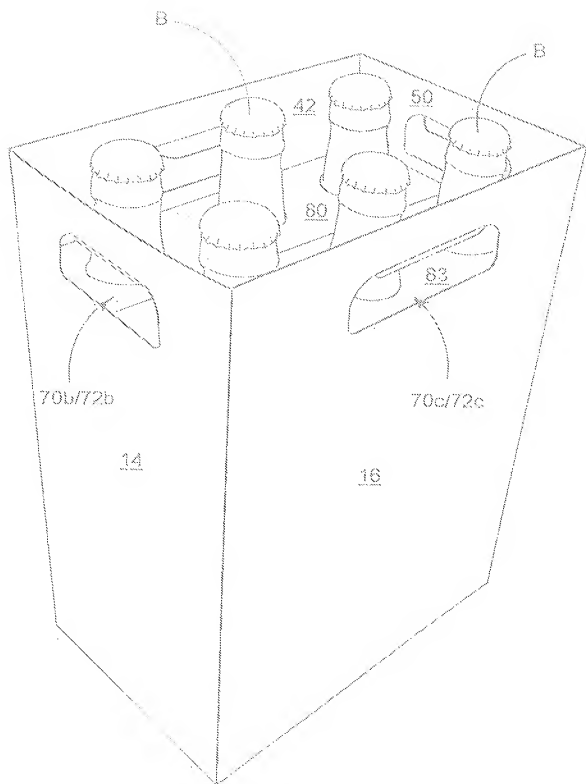


FIGURE 10

## INTERNATIONAL SEARCH REPORT

Pub. No. 01/05 01/05 01/05  
PCT/US 01/04484

IPC 7 0605/02 0605/46 0605/1/00

Any other classification of the invention is given in the International Classification of Patents (IPC).

FIELD OF INVENTION

The invention relates to the field of international patent law, in particular to the field of international patent law.

IPC 7 0605

The invention relates to the field of international patent law, in particular to the field of international patent law.

The invention relates to the field of international patent law, in particular to the field of international patent law.

IPC-Internal

## C. DOCUMENTS CITED IN THE SUMMARY

Document	Number of the document	Number of the document
X	US 3 405 540 A (CARLSON MELVILLE T) 1 October 1968 (1968-10-01)	1 2 10-14 20-24 3-6, 8, 9 15-19
Y	column 4, line 57 - column 6, line 45; figures 5-8	
Y	GB 2 097 705 A (COLAR CORRUATED CONCRETE LTD) 23 December 1981 (1981-12-23) page 1, line 78 - page 2, line 38; figures 1-5	3-6, 8, 9 15-19
A	US 3 827 556 A (ARMELSON E) 6 August 1974 (1974-08-06) column 4, line 44 - line 65; figures 7, 8	3, 7, 15

-/-

☒ The document is a patent document.

☒ The document is a patent document.

1. The document is a patent document.

1. The document is a patent document.

2. The document is a patent document.

2. The document is a patent document.

3. The document is a patent document.

3. The document is a patent document.

4. The document is a patent document.

4. The document is a patent document.

5. The document is a patent document.

5. The document is a patent document.

6. The document is a patent document.

6. The document is a patent document.

7. The document is a patent document.

7. The document is a patent document.

8. The document is a patent document.

8. The document is a patent document.

9. The document is a patent document.

9. The document is a patent document.

10. The document is a patent document.

10. The document is a patent document.

20 May 2003

30/05/2003

Name, address and telephone number of the applicant  
Name, address and telephone number of the applicant  
Name, address and telephone number of the applicant

Name, address and telephone number of the applicant



## INTERNATIONAL SEARCH REPORT

It's published on patent family members

International Search Report

PCT/US 03/04434

Publication No. of the international search report	Publication date	Publication month/year	Publication date
US 3403339	A	01-10-1963	NONE
DE 2077703	A	23-12-1981	NONE
US 3327550	A	06-08-1977	NONE
US 3322322	A	02-07-1977	NONE